IN THE CLAIMS:

Please cancel claim 39 without prejudice.

Please amend claims 10-14, 17-20 and 36 as follows:

Claims 1-9 (Cancelled).

Claim 10 (Currently Amended): An optical communication system for transmitting a soliton or soliton-like pulse, comprising a multiplicity of fiber lengths of opposite sign dispersion concatenated together, for management of dispersion,

the fiber lengths being formed as a multiplicity of unit cells, each cell comprising two adjacent fiber lengths of opposite sign dispersion, wherein each unit cell is short in relation to the ~~length of the dispersion management system~~ nonlinear length of the system, wherein the path average dispersion of the multiplicity of unit cells is anomalous, and wherein the dispersion magnitude of adjacent fiber lengths of a unit cell are both far from zero in relation to the average dispersion for the unit cell which is close to zero, in order to permit propagation of a pulse wherein the shape of the pulse alternately expands and compresses as it propagates through a unit cell.

Claim 11 (Currently Amended): An optical communication system for transmitting a soliton or soliton-like pulse, comprising a multiplicity of fiber lengths of opposite sign dispersion concatenated together, for management of dispersion,

the fiber lengths being formed as a multiplicity of unit cells, each cell comprising two adjacent fiber lengths of opposite sign dispersion, wherein each unit cell is short in relation to the ~~length of the dispersion management system~~ nonlinear length of the system, wherein the path average dispersion of the multiplicity of unit cells is anomalous, and wherein the profile of a pulse at the beginning of a unit cell is substantially Gaussian in shape.

Claim 12 (Currently Amended): An optical communication system for transmitting a soliton or soliton-like pulse, comprising a multiplicity of fiber lengths of opposite sign dispersion concatenated together, for management of dispersion,

the fiber lengths being formed as a multiplicity of unit cells, each cell comprising two adjacent fiber lengths of opposite sign dispersion, wherein each unit cell is short in relation to the ~~length of the dispersion management system~~ nonlinear length of the system, wherein the path average dispersion of the multiplicity of unit cells is anomalous, and wherein the unit cell is defined to start along the length of a fiber section between its ends, and to end along the length of a fiber section, between it ends.

Claim 13 (Currently Amended): An optical communication system for transmitting a soliton or soliton-like pulse, comprising a multiplicity of fiber lengths of opposite sign dispersion concatenated together, for management of dispersion,

the fiber lengths being formed as a multiplicity of unit cells, each cell comprising two adjacent fiber lengths of opposite sign dispersion, wherein each unit cell is short in relation to the ~~length of the dispersion management system~~ nonlinear length of the system, wherein the path average dispersion of the multiplicity of unit cells is anomalous, and wherein a pulse is launched into the multiplicity of unit cells with a substantially Gaussian shape.

Claim 14 (Currently Amended): An optical communication system according to claim 10, wherein the unit cell is defined to start along the length of the fiber section between its ends, and to end along the length of the fiber section between its ends, and a pulse is launched into a unit cell of the ~~dispersion management~~ system with a substantially Gaussian shape.

Claims 15-16 (Cancelled).

Claim 17 (Currently Amended): An optical communication system for transmitting a soliton or soliton-like pulse, comprising a multiplicity of fiber lengths of opposite sign dispersion concatenated together for management of dispersion,

the fiber lengths being formed as a multiplicity of unit cells, each cell comprising two adjacent fiber lengths of opposite sign dispersion, wherein each unit cell is short in relation to the ~~length of the dispersion management system~~ nonlinear length of the system; wherein the path average dispersion of the multiplicity of unit cells is anomalous; and

D1 cont.

wherein the dispersion magnitude of adjacent fiber lengths of a unit cell are both far from zero in relation to the average dispersion of the unit cell which is close to zero, in order to permit the propagation of a pulse through the unit cells wherein the pulse alternately compresses and expands in shape as it propagates through the unit cell, and wherein the pulse is launched into the multiplicity of unit cells with a predetermined shape, which shape is repeated during propagation, at a point in each unit cell.

Claim 18 (Currently Amended): An optical communication system for transmitting a soliton or soliton-like pulse, comprising a multiplicity of fiber lengths of opposite sign dispersion concatenated together for management of dispersion,

the fiber lengths being formed as a multiplicity of unit cells, each cell comprising two adjacent fiber lengths of opposite sign dispersion, wherein each unit cell is short in relation to the ~~length of the dispersion management system~~ nonlinear length of the system; wherein the path average dispersion of the multiplicity of unit cells is anomalous; wherein the dispersion magnitude of adjacent fiber lengths of a unit cell are both far from zero in relation to the average dispersion of the unit cell which is close to zero, in order to permit the propagation of a pulse through the unit cells wherein the pulse alternately compresses

and expands in shape as it propagates through the unit cell; and wherein the profile of a pulse at the beginning of a unit cell is substantially Gaussian in shape.

Claim 19 (Currently Amended): An optical communication system for transmitting a soliton or soliton-like pulse, comprising a multiplicity of fiber lengths of opposite sign dispersion concatenated together for management of dispersion,

the fiber lengths being formed as a multiplicity of unit cells, each cell comprising two adjacent fiber lengths of opposite sign dispersion, wherein each unit cell is short in relation to the ~~length of the dispersion management system~~ nonlinear length of the system; wherein the path average dispersion of the multiplicity of unit cells is anomalous; wherein the dispersion magnitude of adjacent fiber lengths of a unit cell are both far from zero in relation to the average dispersion of the unit cell which is close to zero, in order to permit the propagation of a pulse through the unit cells wherein the pulse alternately compresses and expands in shape as it propagates through the unit cell; and wherein the unit cell is defined to start along the length of a fiber section between its ends, and to end along the length of a fiber section, between it ends.

Claim 20 (Currently Amended): An optical communication system for transmitting a soliton or soliton-like pulse, comprising a multiplicity of fiber lengths of opposite sign dispersion concatenated together for management of dispersion,

the fiber lengths being formed as a multiplicity of unit cells, each cell comprising two adjacent fiber lengths of opposite sign dispersion, wherein each unit cell is short in relation to ~~the length of the dispersion management system~~ nonlinear length of the system; wherein the path average dispersion of the multiplicity of unit cells is anomalous; wherein the dispersion magnitude of adjacent fiber lengths of a unit cell are both far from zero in relation to the average dispersion of the unit cell which is close to zero, in order to permit

the propagation of a pulse through the unit cells wherein the pulse alternately compresses and expands in shape as it propagates through the unit cell; and wherein a pulse is launched into the multiplicity of unit cells with a substantially Gaussian shape.

Claim 21 (Canceled).

D' cont.

Claim 22 (Previously Presented): A method of transmitting a soliton or soliton-like pulse, the method comprising:

launching a stable soliton or soliton-like pulse having a predetermined energy into a dispersion management system, the predetermined energy being greater than that for launching a soliton or soliton-like pulse in an equivalent uniform system with equal path average dispersion.

Claim 23 (Previously Presented): A method according to claim 22, comprising providing a dispersion management system being formed as a multiplicity of unit cells, each unit cell comprising two adjacent fiber lengths of opposite signs dispersion, and defining the unit cell to start along the length of a fiber section between its ends, and to end along the length of a fiber section, between its ends.

Claim 24 (Previously Presented): A method according to claim 23, including defining the unit cell to start midway along the length of a fiber section and to end mid-way along the length of a fiber section.

Claim 25 (Previously Presented): A method according to claim 23, comprising launching a soliton into the fiber, so that the pulse at the beginning of a unit cell is substantially Gaussian in shape, the shape of the pulse alternately expanding and compressing as it propagates through a unit cell.

Claim 26 (Previously Presented): A method according to claim 22, including launching the pulse into the fiber with a predetermined shape.

D1 cont.

Claim 27 (Previously Presented): A method according to claim 25, including launching the pulse into the fiber with a substantially Gaussian shape.

Claim 28 (Previously Presented): A method according to claim 23, comprising propagating a pulse through the dispersion management system with the profile of the pulse at the beginning of each unit cell being the same, and the shape of the pulse alternately expanding and compressing as it propagates through each unit cell.

Claim 29 (Previously Presented): A method of transmitting a soliton or soliton-like pulse in an optical communication system, the system comprising a multiplicity of fiber lengths of opposite sign dispersion concatenated together in order to provide a relatively high local dispersion at any given point, but a relatively low path-average dispersion,

the fiber lengths being formed as a multiplicity of unit cells, each unit cell comprising two adjacent fiber lengths of opposite sign dispersion,

the method comprising launching a pulse into the dispersion management system with a predetermined energy , the predetermined energy being greater than that for launching a pulse in an equivalent uniform system with equal path average dispersion,

and transmitting the pulse through the dispersion management system with the pulse profile being the same at the start of each unit cell, whilst alternately compressing and expanding as the pulse progresses through a unit cell.

Claim 30 (Previously Presented): A method according to claim 29, wherein the peak power of the pulse within a unit cell is lower than the initial launched power.

D1 cont.

Claim 31 (Previously Presented): A method according to claim 30, including launching the pulse into the system with a substantially Gaussian shape.

Claim 32 (Previously Presented): A method according to claim 29, including launching a pulse into the system with a predetermined form, and the pulse profile is repeated at a point within each unit cell.

Claims 33-35 (Canceled).

Claim 36 (Currently Amended): An optical communication system comprising a multiplicity of unit cells, each cell including at least two lengths of optical fiber that have dispersions of opposite sign, wherein the dispersion magnitude of each optical fiber length is substantially greater than the magnitude of the path average dispersion of the unit cell, <u>wherein the length of each unit cell is short compared to a nonlinear length of the system,</u> and wherein the multiplicity of unit cells permits propagation of a stable or quasi-stable optical pulse.

Claim 37 (Previously Presented): The optical communication system of claim 36, wherein the optical pulse alternately expands and compresses as it propagates through the unit cells.

Claim 38 (Previously Presented): The optical communication system of claim 36, wherein the path average dispersion of the multiplicity of unit cells is anomalous.

D1 cont.

Claim 39 (Cancelled).

Claim 40 (Previously Presented): The optical communication system of claim 36, wherein the difference between the dispersion magnitudes of the optical fiber lengths is less than 12 ps^2/Km.

Claim 41 (Previously Presented): The optical communication system of claim 40, wherein the difference between the dispersion magnitudes of the optical fiber lengths is less than 4 ps^2/Km.

Claim 42 (Previously Presented): The optical communication system of claim 41, wherein the difference between the dispersion magnitudes of the optical fiber lengths is less than 0.1 ps^2/Km.

Claim 43 (Previously Presented): An optical communication system comprising a multiplicity of unit cells, each cell including two lengths of optical fiber that have dispersions of opposite sign, wherein the multiplicity of unit cells permits propagation of a stable or quasi-stable optical pulse, and wherein the optical pulse is substantially Gaussian in shape.

Claim 44 (Previously Presented): The optical communication system of claim 43, wherein the optical pulse alternately expands and compresses as it propagates through the unit cells.

Claim 45 (Previously Presented): The optical communication system of claim 43, wherein the path average dispersion of the multiplicity of unit cells is zero or anomalous.

D' Cont.

Claim 46 (Previously Presented): The optical communication system of claim 43, wherein the length of each unit cell is short compared to a nonlinear length of the system.

Claim 47 (Previously Presented): The optical communication system of claim 43, wherein the difference between the dispersion magnitudes of the optical fiber lengths is less than 12 ps^2/Km.

Claim 48 (Previously Presented): The optical communication system of claim 47, wherein the difference between the dispersion magnitudes of the optical fiber lengths is less than 4 ps^2/Km.

Claim 49 (Previously Presented): The optical communication system of claim 48, wherein the difference between the dispersion magnitudes of the optical fiber lengths is less than 0.1 ps^2/Km.